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ABSTRACT

A three-factor model for the management of early childhood stuttering is proposed that takes into account stuttering's psychosocial, psycholinguistic, and physiological aspects. The primary focus of the present article is the psycholinguistic factor. To this end, a rationale for the use of language-based therapy is presented, together with specific techniques for carrying out such a therapy. Guidelines are offered regarding the following aspects (sample suggestions in parentheses): the physical setting (a low-structured setting for the very young stutterer), the linguistic setting (careful use of questions), the sequencing of linguistic events in therapy (beginning with brief, one or two-word utterances), and pragmatic aspects of therapy (assisting the child to generalize fluency and controls in situations especially difficult for the child). (CL)

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LANGUAGE-BASED THERAPY FOR YOUNG CHILD STUTTERERS: RATIONALE AND TECHNIQUES

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Language-Based Therapy for Young Child Stutterers:: Rationale and Techniques

Abstract

The authors propose a three-factor model for the management of early childhood stuttering. The three factors are the psychosocial, psycholinguistic and physiological aspects of stuttering. The primary focus of the present article is the psycholinguistic factor. To this end, a rationale for the use of language-based therapy is presented, together with specific techniques for carrying out such a therapy.

Treatment of early childhood stuttering is currently receiving focused interest, in part because of recognition of the need for stuttering prevention in young children (Marge, 1984) and in part due to the recent flourish of research in the field of child language. The latter has sensitized us to the call for a closer look at the dynamics between language functions and the concurrent development of fluency during the preschool years. Many fruitful questions have been generated from this scrutiny, including the following: What is the relation between language development and fluency development in the normal child? What is the relation between language functions and disfluencies in the young stutterer? Do some young stutterers have an intrinsic delay in their speech and language development? What specific effects would increased communicative load in the areas of syntax, semantics, and pragmatics, respectively, have on the disfluencies of a child? How should we treat the young disfluent child based on what we know of the relation between language and fluency?

The particular emphasis of this article is on a language-based approach to the clinical management of childhood stuttering, placed within an overall three-factor interactive framework. Our three-factor model (the three factors being psycholinguistic, psychosocial and physiological variables and the interactions

thereof) has been discussed elsewhere (Myers and Wall, 1982; Wall and Myers, 1984). Variables subsumed under the psychosocial factor include influence of parental manner and rate of speech and the social load of discourse; physiological variables include laryngeal and supralaryngeal tension; while syntactic and semantic complexity exemplify variables subsumed under the psycholinguistic factor. Suffice it to say in the present article that fluency results in the synergistic interaction among variables in all three factors, and that anomalies in one of the factors can adversely influence function of variables in a second factor. For example, increased syntactic/semantic complexity may incur greater laryngeal tension, resulting in moments of disfluencies. On the other hand, the therapy strategy of using linguistically simpler utterances may reduce the load placed on the speech production system, thus enhancing fluency. Since the focus of this article is on a language-based approach to treatment the young disfluent child, let us now turn to a discussion of the rationale for such an approach.

Rationale for a Psycholinguistic Focus

The functionalist model by Bates and MacWhinney (1979) offers a fruitful account of the intricacies of communication development. According to Bates and MacWhinney, children are faced with the task of communicating highly complex and

nonlinear meanings through the linear speech channel. While Bates and MacWhinney spoke primarily of language development, we would like to apply this model to fluency development as the latter coordinates with the child's development of language.

Given the rapidity of the coarticulatory gestures during discourse, temporal disruptions in the stream of speech movements can be one consequence of increasing linguistic/communicative demands experienced by the young stutterer. In his attempts either to encode new semantic/cognitive notions using old linguistic form, or his attempt to try out new linguistic forms to encode familiar mental schemas, or in his attempts to encode a novel or assertive pragmatic intent, the child extends his linguistic capacities. However, ours is a limited-capacity processor of information. If the communicative demand is too great, disfluencies can result for both the normally nonfluent child as well as the young incipient stutterer.

Research has shown that some young stutterers are speech and language delayed. Based on a review of the extant literature, Andrews, et. al. (1983) calculated an average delay of six months for many young stutterers. A recent study by Blood and Seider (1981), using questionnaires completed by clinicians on more than 1000 school-age stutterers, showed that 10% of the stutterers had some kind of language problem and 11% exhibited artículatory defects. These language-

articulatory deficits are likely to impose added burden to the child's fluency system.

Evidence also exists that some young disfluent children use shorter, simpler utterances compared to nonstutterers. The three to six-year-old stutterers studied by Kline and Starkweather (1979) used shorter MLU than matched controls, due to the preponderance of one-word responses used by the young stutterers. It is speculative at this point whether their shorter MLU reflects an intrinsic language deficit or whether it is due to the child's conscious witholding of language in a stressful communication situation. Both possibilities can be likely for a given child. Kline and Starkweather also found that the preschool stutterers performed more poorly than the nonstutterers in expressive as well as receptive language skills. Because there was also a high correlation between their receptive and expressive skills, the authors interpretation was that the stutterers depressed expressive language reflected linguistic competence rather than simply an avoidance of stuttering by using shorter utterances.

Evidence also exists that some incipient stutterers do less well and show more variability on formal langage tests and other assessment tools using high-structured elicitation tasks. Several precautions need to be sounded, however, in

the interpretation of the studies using high-structured language tests. Because of the scope of high-structured tests, by necessity, is more narrowly defined and less conducive to capturing naturalistic language output compared to language sampling techniques, a part of this variability found across studies using high-structured techniques may reflect the diversity of tests and techniques used, since most tests cannot encompass a wide scope of language functions. MOreover, high-structured tests vary in degree of validity and reliability as well as their underlying theoretical orientation to language. With these forethoughts in mind, the following are some representative findings on the language skills of disfluent children.

Murray and Reed (1977) found that their preschool stutterers scored lower than controls on the Peabody Picture Vocabulary Test (PPVT), the Northwestern Syntax Screening Test, and the verbal section of the Preschool Language Scale. Williams and Marks (1972) found a depression in the auditory-vocal sequencing skills (particularly at the automatic level) relative to the overall ITPA profile of their 25 stutterers ages five to nine years. Finally, Westby (1979) found that her kindergarteners and first grade stutterers performed more poorly than controls on the PPVT, but the two groups performed comparably based on

a Developmental Sentence Scoring analysis of their language samples.

Evidence is beginning to accrue on the pragmatic influence of communication situations on fluency. Most of the published research has been on the nonfluency of normal speaking preschoolers. Silverman (1973), for example, found that four-year-old normal-speaking preschoolers showed more nonfluencies during socialized than during egocentric speech, and more nonfluencies in utterances which were considered to be conveying "adapted information" with intents to inform or influence the listener. Presumably speech acts which attempt to adapt to or influence one s listener incur greater communicative pressure and thus increased vulnerability to speech fragmentations.

Studies using language sampling techniques have found that the loci of early stuttering occur at or toward the beginning of utterances. Bloodstein and Gantwerk (1967) found a greater occurrence of stuttering for thirteen two to six year olds on conjunctions and pronouns. They attributed this finding to a positional effect in that these two parts of speech occur frequently at the beginning of utterances. Loci at the beginning of utterances and clauses was also found by Bloodstein (1974) in the free speech of six stutterers ages three to six years by Bloodstein and Grossman (1981), and Wall, Starkweather and Cairns (1981) on nine stutterers ages four to six years.

One interpretation of these loci findings is that the young stutterers experience uncertainty and tension at junctures requiring syntactic planning and motor planning for speech.

The above findings are representative of an emerging group of studies on the language skills of young stutterers. While more studies are needed, these findings indicate that at least some young stutterers experience a delay or deficit in linguistic functioning. The need to optimize the communication environment and reduce communicative demands on the incipient stutterer, therefore, is crucial especially during the early stages of therapy to allow the child to make gains with fluency.

Language-based therapy refers to the manipulation of linguistic units to facilitate fluency in the stutterer. It allows for an increase in the young stutterer's fluency not only within the clinical setting but also on a day-to-day basis in the child's natural environment. For clinical purposes, language-based techniques may be incorporated into a more broadly-based therapy---one that focuses, as is deemed necessary, on the pertinent aspects of the psycholinguistic, physiological, and psychosocial factors. The therapeutic focus on the three factors is determined by the diagnostic profile established at the initial evaluation, with changes in focus anticipated as the child progresses through therapy.

While this paper specifies our own therapy, mention should be made of other therapies employing a language-based approach. Gregory and Hill's Treatment Strategy III Comprehensive Therapy Program: Child Atypically Disfluent with Complicating Speech, Language, or Behavioral Factor (1980), the Stocker Probe Technique of Diagnosis and Treatment of Stuttering in Young Children (1980), and Ryan and Van Kirk's Gradual Increase in Length and Complexity of Utterance (1978), or GILCU, all employ the manipulation of language but in different ways. Gregory and Hill's Strategy III is a comprehensive therapy, one of

three strategies used for the young disfluent child. The therapy is carried out in a play setting with the clinician structuring the child's responses in such a way as to elicit one-word fluent responses, and then increasing those responses while the child maintains fluency. Stocker and Ryan and Van Kirk have organized their therapies into packaged programs. Stocker's therapy elicits responses from the child according to "level of demand." As the demand for increasingly propositional speech increases, the tendency to stutter increases, according to Stocker. The child's fluency is gradually increased on the lower level responses and then the client proceeds to the higher levels, attempting to maintain the fluency. Ryan and Van Kirk s program is a tightly structured program, in which language units are manipulated using behavior modificiation principles, including the shaping of fluency from small, monosyllabic utterances to utterances of increased length and complexity. The approaches of Gregory and Hill, Stocker, and Ryan and Van Kirk, have been discussed more fully by Wall (1982).

While the following techniques are mainly language-based, excursions into the physiological and psychosocial aspects of therapy will be made from time to time. The techniques described have been carried out on children as young as two and a half years of age, with appropriate adjustments made for

activities and the presentation of goals and tasks according to the child's age and interests.

The Physical Setting

With the very young stutterer, a low-structured setting is advisable; this may change and become more structured as the child becomes more task oriented. Attractive toys are available to the child in a comfortable room. The atmosphere is unhurried with the clinician using a slow-normal rate of speech. While we encourage interactive play with the child and, therefore, interactive communication, parallel play is used at first if the child is uncomfortable with interactive play.

The Linguistic Setting

Adults often communicate with young children with a barrage of questions that does not inspire spontaneous communication for the most part, but leads to monosyllabic answers. A casual comment to a three-year-old that the clinician likes the child's new shoes will probably lead to more spontaneous communication than a series of questions. Questions, however, may have a clinical use when they elicit responses of graduated complexity from the child. For instance, yes/no or either/or questions elicit one-word responses, while wh-questions may require semantically and syntactically complex sentences. Consider the potential difference in answer to "Do you want the doll or the

car?" and "Why did you take all of the people out of the dollhouse?" Strategically placed questions or comments may also relieve the linguistic load that a child incurs, to the detriment of fluency, when the child is attempting to relate a long, involved story. Parents sometimes feel helpless when a young stutterer attempts, for instance, to relate an incident that occurred in nursery school that day, perhaps succumbing to severe stuttering given the emotional and linguistic complexity of the situation. The parents may learn to insert an either/or question or a yes/no question that relieves the tension, and allows the child to respond appropriately while still maintaining responsibility for the conversation. A question requiring a complex answer here, however, is inappropriate. Questions, therefore, may be used to facilitate fluency and by their structure, may be used to elicit responses of increasing complexity, a technique that Stocker uses in her program (Stocker, 1980).

The Sequencing of Linguistic Events in Therapy

Fluency is encouraged in the beginning therapy sessions by eliciting brief, one- or two-word utterances from the youngster which, given the benign atmosphere and linguistic simplicity of the response, will probably be fluent. The utterances may be elicited in a variety of ways, and their elicitation usually is simplified by the young child's willingness to imitate an adult model. If, for instance, the clinician, in placing a family of

dolls in a dollhouse, slowly places one in, saying "daddy" or "daddy in," and repeats this with other family members the child may well respond in kind. The clinician, by gesture and expression, may encourage the child to participate. That is, the clinician makes brief comments about the activity and encourages the child to do the same. Or, a turn-taking activity may be set up whereby each takes turn at naming the people going into the dollhouse, or the animals going into the barn, or the pieces being placed in the simple jigsaw puzzle. Yes/no or either/or questions may be used to elicit brief utterances for this early goal. Alternatively, some may find the more formal procedure of picture naming satisfactory for this task, though we personally find that young children are very responsive to the less formal procedures.

When the child's fluency on short utterances is established the clinician begins to extend her utterances slightly to three or four words, eliciting the same from the child and asking only questions that require a brief phrase in response. With increased proficiency on the child's part, the clinician further lengthens her utterances, using simple questions only, and elicits the longer utterances from the child.

If the child blocks during the above speaking activities, he or she is asked to repeat the word over easily or gently. The

graduated linguistic units do not preclude stuttering from occurring at times. At the clinician's discretion, therefore, a block may be used to help the child to modify the stuttering pattern. A frequently acceptable way of doing this with a youngster is to make some kind of reference to "hard" speech and "easy" speech (Williams, 1971, 1979), beginning with a comment such as "That looked hard to say." when the child has a noticeable block. Children often react with surprising sophistication and insight to such a comment, enabling the clinician to proceed with "Let me show you how to say it the easy way." Such a technique, borrowed from the "physiological" aspects of therapy, is the beginning of teaching the child to physiologically loosen the vocal tract musculature or to use loose contacts. Use of loose contacts refers to a highly relaxed production of a word, where the articulators barely touch and the voice initiation is gentle. The clinician, therefore, models the word for the child using loose contacts and elicits an imitative response, giving due praise for the effort. For the youngster who is not immediately responsive to this overture, the clinician may gently and firmly return to it at a later time. Eventually, however, the clinician encourages the child to imitate loose, easy speech with "Now, you try it." Once the child accomplishes this, the clinician proceeds to a nonverbal cue, perhaps a touch on the arm, to remind the client to "cancel" the block.

Ultimately, the client may be given more structural language tasks and conversational tasks in which the clinician requests the child to maintain easy speech by "staying loose." Creative ideas by the clinician that may reinforce the concept of looseness and relaxation of the speech production mechanism, such as the use of puppets, are helpful.

If the child is in the very early stages of therapy, and particularly if the child is considered to be a mild stutterer, the clinician is best advised to rely upon the fluency enhancement procedures provided through the sequencing of linguistic events. If, however, conspicuous blocking is present, it undoubtedly will emerge during the therapy sessions and will have to be dealt with. Many clinicians have been reluctant to confront young stutterers directly about stuttering blocks, apparently afraid that they will somehow harm the child and make the stuttering worse. Since children who are stutterers usually reveal, one way or another, that they "know" something is amiss with their speech, it behooves the clinician to find a means of helping the child to handle the blocks. The techniques above may be used to teach the child a form of simple cancellation (Van Riper, 1963, 1973). This is a powerful tool since it implies monitoring of speech if the child uses it spontaneously. The child may even be encouraged to "say it easily" after the onset of a block, thus being introduced

to a simplified form of Van Riper's pullout.

At this point in therapy, the clinician is eliciting simple sentences of modest length from the child which, for the most part, are fluent. Work on the stuttering blocks is incorporated as necessary, as described above, and continues to be used as necessary as the clinician gradually increases the linguistic requirements of the child. The clinician may move from the simple sentences to conjoined clauses to describe activities. The child is also encouraged to begin to sequence clauses, maintaining easy speech. While this stage of therapy may also be carried out effectively through play activites, for variety the clinician may introduce slightly more formal activities such as picture descriptions. We also find that some commercial language kits are useful for this procedure; this work leading to the child relating stories about his or her activities while using easy speech. If the child tends to speak, as some youngsters do, without pause between clauses, we ask the child to tell the story "in pieces," by chunking of phrases or clauses. In this way, the child is encouraged to allow time for possible linguistic and physiological planning (for further discussion see Wall and Myers, 1984; Wall, Starkweather and Cairns, 1981; Wall, Starkweather and Harris, 1981). Gentle initiation of clauses is encouraged since most stuttering in beginning stutterers occurs at the clause onset.

The clinician, meanwhile, is building up the complexity of his or her utterances and requiring more complexity from the child, as in, for example, the activities just described and as in asking the child questions requiring more complex answers. At all times, however, the child s language level is taken into account; passive constructions and embedded relative clauses are not used with a three or four year old because they do not develop until later.

Parents observe therapy sessions with a second clinician training them to elicit fluency from their child. MOst parents are encouraged to spend some time each day engaged in low-key play with the child, working in much the same way that we do in eliciting the graduated utterances and fluency. They also learn to cue the child in to tension in order to reduce the child s forceful speaking, to adjust their own linguistic level to make it easier for the child to communicate, and to reduce linguistic pressure on the child as a means of heightening fluency. The clinician's knowledge of the structure of language, the development of language, and the use of language are obviously crucial to therapy with the child and with the parents. With the increase of fluency due to the psycholinguistic and physiological techniques, the child's increased ease as a speaker should be apparent and may result in increased talking.

To summarize so far, an increase in the clinical fluency has been facilitated by: 1) creating a benign atmosphere with minimal demands upon the child; 2) manipulating the linguistic load that the child is required to deal with perceptually and productively; 3) offering the child methods to deal physiologically with the blocks; and 4) training the parents to help transfer this work into everyday situations. The psycholinguistic techniques predominate in the one-on-one sessions between clinician and child, with the physiological techniques added at the clinician's discretion. The interaction of the psycholinguistic and physiological aspects of speech are particularly notable in the work on the sequencing of clauses, when the clinician helps the child to coordinate clauses with the physiology of speech associated with inter-clausal pauses. The psychosocial effects of therapy will be noted in the child's increased willingness and ease in talking, and perhaps in other manifestations of improved interactions with others and increased self-esteem.

While the techniques described above may be used with young stutterers who exhibit some form of language delay, modifications are in order for this population. To facilitate fluency and gain control over the blocking in language-delayed youngsters, it is recommended that the vocabulary used in the therapy sessions consist of words already in the child's lexicon. It is of

primary importance to keep utterance length and complexity as controlled as possible. And, while the influence of the phonological component of language on fluency is still unclear, motoric and phonological simplicity of vocabulary seems to be in order until the child's fluency is more stabilized. New vocabulary, longer utterances, and new semantic-syntactic structures may be more safely added as fluency and controls increase. The clinician is attempting to maintain equilibrium between expansion of the child's language and speech expression and the stability of fluency; a balancing feat that is not always easy. The sequencing and the pacing of goals for this child are extremely important.

Pragmatic Aspects of Therapy

Any therapeutic attempt to vary the speaking environment of the child or to vary the child's communicative role within the environment, deals with the pragmatics of communication. Transfer or generalization procedures which help the child to maintain fluency and controls in different speaking situations and in different speaker roles, therefore, utilize pragmatic principles. The clinician may make good use of such principles to assist the client in the use of fluency and controls in his or her specifically difficult situations. For example, we knew a four-year-old boy whose speech deteriorated dramatically when he was required to

engage in any type of turn-taking activity. This type of activity apparently placed him under a good deal of stress. The clinician helped this child to participate in turn-taking activities, at first by requiring a minimum of this activity and giving due recognition for any success. She gradually shaped his turn-taking activity to consist of longer periods of time. In addition, she helped him to deal with feelings of frustration that intermittently arose during such activities, and helped the parents to deal more effectively with such reactions. Role playing, during which the child maintains fluency and controls while simulating different roles, offers a further method for effecting the transfer of gains made in therapy. Examples of useful role playing are putting the child in the regulator, or "boss," role, and acting out the family dinner time when the child may be competing for attention.

In addition to the above activities, we try to strengthen the child's resistance to conversational variables, as Van Riper has done, such as hurry and excitement. We deliberately inject hurry and excitement into the therapy sessions and encourage the child to maintain fluency and controls at those times.

Work on pragmatic variables is dovetailed with appropriate work with significant adults in the environment, such as parents

and teachers. In this way the adult might learn to cue the child for easy speech if a block occurs in a difficult situation, though ultimately the child needs to handle this situation himself or herself.

Fluency may emerge fairly quickly in the clinical sessions, and in some very young children it appears to transfer to other situations spontaneously (see also Adams, 1930; Ryan, 1980; Shine, 1930). For those with whom this does not occur, varying the pragmatic aspects of language will assist. We also involve the parents and siblings, bringing them into the session at first individually and for brief periods of time, encouraging the child to use easy speech while interacting with them during simple play activities, and gradually increasing the interaction time.

To summarize, the clinician uses therapeutic aspects of the psycholinguistic, physiological, and psychosocial factors. The psycholinguistic factor, however, governs the interaction between clinician and child. For further details of therapy see Wall and Myers (1984).

Children usually attend twice weekly for one hour sessions. When fluency has been established in all situations we continue therapy for approximately two months to ensure its stability, and then reduce the frequency of the sessions over a period of

time. Following discharge, we attempt to keep the child on follow-up appointments for two years.

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